

Remarks

Applicants are grateful to the Examiner for spotting the typographical error in claim 89 and have amended claim 89 to correct this.

Applicants are also grateful for the allowance of claims 55 to 58 and 60 to 72. Regarding the allowability of claims 85 to 95, applicants respectfully submit that the Examiner's rejections are moot in view of the following.

Turning to consider the Examiner's rejection of the remaining pending claims, no further claim amendments have been made as the claims are believed to be patentably distinct from the prior art citations raised by the Examiner for following reasons:

In the previous response, applicants amended the independent claims to include the limitation

"wherein the hierarchical arrangement of levels of paths/levels of LSPs comprise a hierarchical arrangement of Quality of Service (QoS) capable Multi- Protocol Label Switched (MPLS) tunnels".

Applicants further argued that Meempat (US 6,778,496) not only fails to disclose the use of QoS capable MPLS tunnels but specifically and without reservation teaches away from this feature. The Examiner has disagreed, arguing that

"Meempat clearly teaches the use of QoS in MPLS ... note that claims 31, 43 and 73 do not disclose bandwidth and whether the bandwidth is reserved or not. In addition, column 4 lines 61-67 teaches both the reserving of bandwidth and not reserving of bandwidth."

The Examiner will be aware that to establish a case of anticipation under 35 USC §102(e) each and every feature of the claims must be shown in the prior art. Applicants firmly believe that Meempat not only does not disclose QoS capable MPLS tunnels, but specifically teaches away from this feature.

The Examiner will appreciate that a link and a tunnel are entirely different. A tunnel may comprise a number of links but is at a different level in the hierarchy of a network. There may be a number of different tunnels traversing the same link or no tunnels at all traversing an individual link. To be a QoS capable MPLS tunnel, bandwidth must be reserved at the level of the tunnel not at the link level. To illustrate this point, if one particular link has a bandwidth reservation of 1Gb/s, but there are a hundred different tunnels traversing that link (and other links) then each of the MPLS tunnels must compete for bandwidth over the link. Clearly the one hundred tunnels cannot each have 1 Gb/s bandwidth. But, more importantly, unless bandwidth is reserved at the tunnel level then the tunnel cannot be said to be QoS capable. Even though bandwidth may be reserved at the link level, a tunnel established across that link will have no bandwidth reservation of its own and is therefore not QoS capable.

The invention as presently defined in all of the claims is specifically limited to QoS capable MPLS tunnels. Meempat specifically and without reservation teaches away from this feature and, in contrast, teaches that the MPLS tunnels must share the bandwidth reserved on links. To assist the Examiner, the relevant passage of the prior art reference cited (column 4, lines 57 to column 5, line 2) is set out below.

"Furthermore, a packet prioritization scheme such as Diffserv is implemented at the routers to support QoS management. Those skilled in the art however recognize the desirability of functional independence between MPLS and traffic prioritization, if implemented. To be specific, no bandwidth is reserved per MPLS path since that would limit scalability and achievable statistical

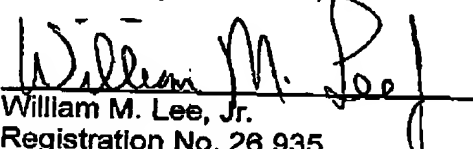
multiplexing gains. In contrast, a certain aggregate bandwidth is reserved on each network link 18 for the application in question, by virtue of a suitable Diffserv policy (e.g. WFQ) implemented at the routers 14, 16. The MPLS paths carrying traffic belonging to this application are then allowed to fully share the reserved bandwidth segment."

Applicants believe it is abundantly clear that Meempat specifically and without reservation teaches away from the feature of QoS capable MPLS tunnels which one skilled in the art will appreciate are equivalent to MPLS paths in the terminology of Meempat. In contrast, Meempat teaches bandwidth reservation at the link level and that MPLS tunnels are allowed to fully share the reserved bandwidth. Thus Meempat not only does not disclose the claimed feature but teaches away from them.

Accordingly, it is believed that the application is fully allowable in its present format and applicants look forward to receiving a Notice of Allowance.

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Respectfully submitted,



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